WHAT IS CLAIMED IS:

- 1. A method for detecting an analyte in a sample comprising:
- (a) contacting a fluorophore-labeled aptamer bound to a solid support with the sample;
 - (b) illuminating the aptamer with polarized light;
 - (c) measuring the fluorescence anisotropy of the fluorophore; and
- (d) identifying the presence or amount of the analyte when said fluorescence anisotropy measurement is greater than an anisotropy measurement obtained in the absence of the sample.
- 2. The method of claim 1 wherein the solid support is a bead.
- 3. The method of claim 2 wherein the bead is a silica bead.
- 4. The method of claim 2 wherein the bead has a diameter between about 1 μm and about 10 μm .
 - 5. The method of claim 4 wherein the bead has a diameter of about 5 μ m.
 - 6. The method of claim 2 wherein the bead is suspended in solution.
- 7. The method of claim 2 wherein the bead is arranged in a two-dimensional array.
- 8. The method of claim 1 wherein the aptamer comprises between about 10 and about 100 nucleotides.
- 9. The method of claim 1 wherein the aptamer is labeled with a fluorophore selected from the group consisting of fluorescein derivatives, eosin derivatives, coumarin derivatives, and rhodamine derivatives.
- 10. The method of claim 9 wherein the aptamer is labeled with carboxyfluorescein (FAM).
 - 11. The method of claim 1 wherein the aptamer is part of an array of aptamers.
- 12. The method of claim 11 wherein the array comprises two or more addressable locations.
- 13. The method of claim 12 wherein each addressable location comprises a single type of aptamer.

- 14. The method of claim 12 wherein each addressable location comprises multiple types of aptamers.
- 15. The method of claim 14 wherein each type of aptamer is labeled with a fluorophore with unique spectral characteristics.
 - 16. The method of claim 1 wherein the polarized light is laser light.
- 17. The method of claim 1 wherein the analyte is associated with a disease or disorder.
- 18. The method of claim 1 wherein the sample is obtained from a patient suspected of suffering from a disease or disorder.
 - 19. The method of claim 1 wherein the analyte is a protein.
 - 20. The method of claim 1 wherein the analyte is a metabolite.
- 21. The method of claim 1 wherein the sample is from a human patient and the analyte is associated with a disease or disorder.